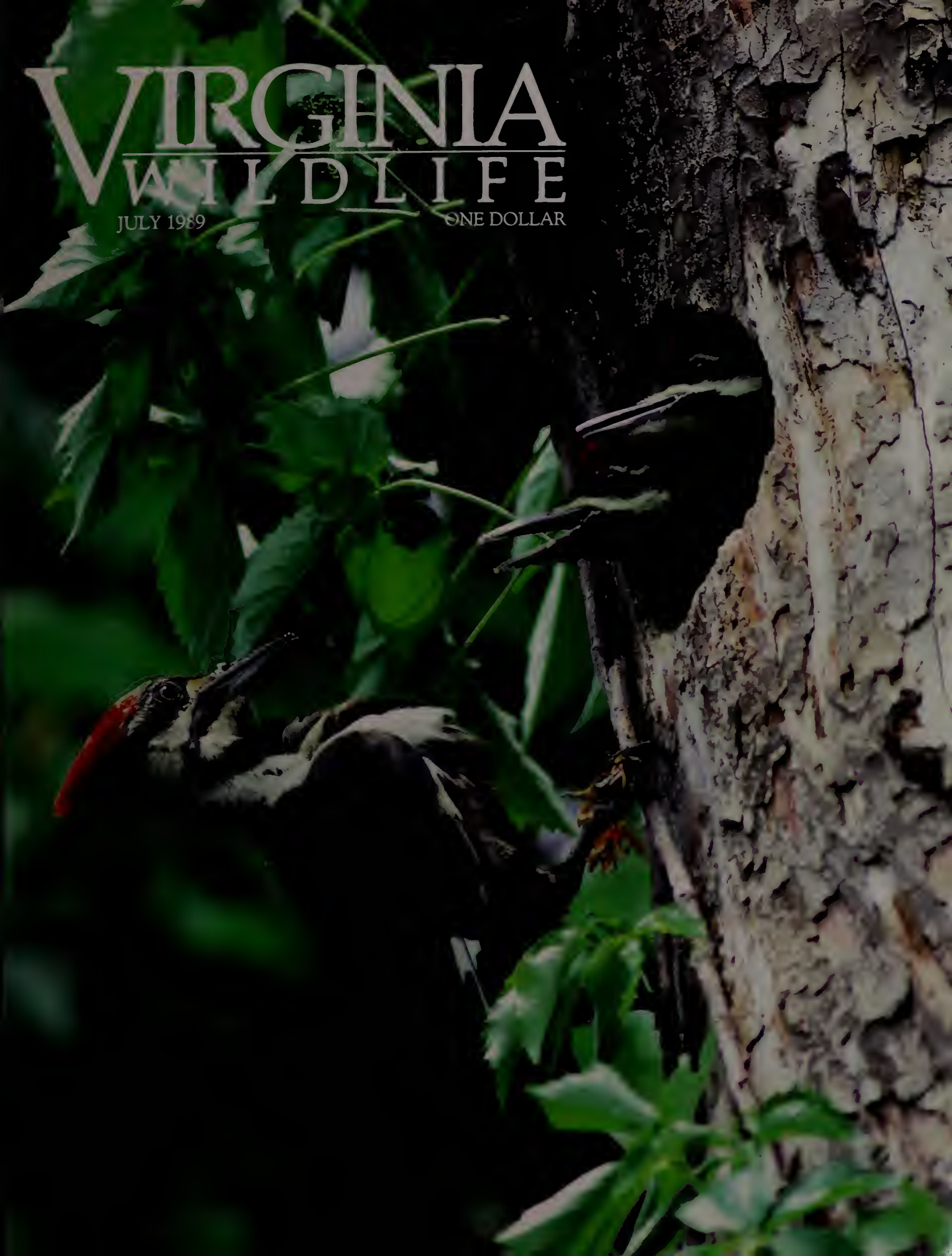


# VIRGINIA WILDLIFE

JULY 1989

ONE DOLLAR



There's a big word in the English language that most biologists commit to memory early on in their careers: *anthropomorphism*. Webster's defines it as: "An interpretation of what is not human or personal in terms of human or personal characteristics." It's the so-called "Bambi" syndrome.

Anthropomorphism is the monster lurking in the shadows that scientists guard against, and they use logic, objectivity, and statistically sound samples as their weapons against this beast which threatens to steal truth from them. After all, a biologist's greatest fear is that he might assume something false about an organism, and the closer he gets to his subject, the more his fear increases. It's kind of like being on guard against falling in love. A wonderful herpetologist confided to me recently that he can no longer look toads in the eyes. If he did, he would no longer be able to continue his research on them. It just proves to me what I knew as a child: toads are powerful charmers.

But I propose that all animals are, so that every biologist needs be on guard. Because, upon falling in love, one wants desperately to believe that they know everything about their beloved. After all, who could live with the fear that they might know nothing at all?

Humans are suckers for thinking they know intimately what they love—it's such a commonly accepted trait that people make a lot of money on it. Look at dog food manufacturers. They thrive on our inability to separate the identities of our pets from ourselves. They know that we'll buy "meaty stew and rich gravy" dog foods before we'll lug a bag of dry lumpy food home for our pets. It doesn't matter that the dry food might be more nourishing and desirable to the dog. Clearly, our affection clouds our vision.

It is admirable that scientists have tried so hard to guard against this sort of self-deception. For, other species are *not* human-like, they do not think or feel like humans, and any belief otherwise is simply presumptuous of us. How pompous of us to pretend that we know what another *species* is feeling, when it is hard enough to know ourselves!

Still, though scientists have thwarted the monster of anthropomorphism, something is missing. In their attempt to define species objectively, something important has been left out of the papers describing the territory, the number of young, and the caloric intakes of animals. Something has been left out of the wildlife films and magazines that monotonously describe where an animal lives, what it eats, and how it reproduces. The missing information is difficult to explain, but that doesn't make it any less essential to understanding our kindred species.

The kind of information I'm talking about does exist. You can find it in the folklore of primitive people, of those who rest close to the Earth. You can find it in a hunter's tale of an animal's remarkable actions in the woods, and his respect for something that he may not understand but nonetheless still admires. It is knowledge that goes beyond biological processes, and enters a more personal realm, one where a separate identity is recognized and accepted; respected and never trivialized. It is kinship, perhaps.

My friend Brenda recently was asked by some men from a power company if they could trim some intrusive holly bushes around her farm. She paused briefly, recalling a neighbor's recent experience and the severe pruning that resulted. "Yes, certainly," she said. "All I ask is that you cut them with the respect you would give your grandmother's hair." They laughed. Though they may not have cut as gently as grandsons, they knew what she meant.

Kinship is a good word, even if it's not easily explained.—Virginia Shepherd





photo by Karl Maslowski

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What better way to spend a summer's afternoon than to tie a piece of liver to a hook and lean back against a comfortable tree?

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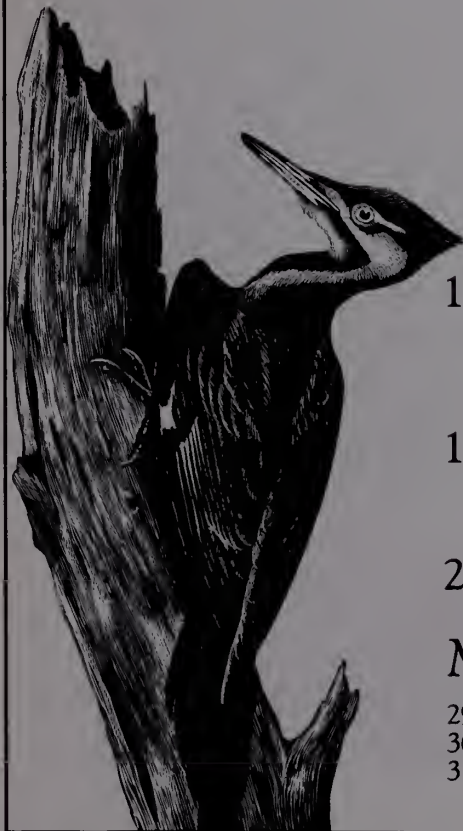
Pileated woodpeckers are more than just big birds—they're *awesome*.

### 24 Field Trials by Bob Gooch

Cover: The pileated woodpecker, North America's largest living woodpecker, is featured in this issue. This nongame species is just one of many that the Department of Game and Inland Fisheries' Nongame and Endangered Species Program monitors in Virginia. To ensure the health and survival of this and all other nongame wildlife in the state, use the tear-out card in the back of this magazine to donate to the program; photo by Vinyard Bros. Back cover: Umbrella-leaf (*Diphyllia cymosa*); photo by Rob Simpson.

## May Journal

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I picked up my rod after washing my fingers. A snelled no. 2 Eagle Claw, heavy with chicken liver, hung two feet below the rod tip. Ten inches beneath the liver, a ½ ounce sinker rested against a split shot; 17 lb. mono was threaded through its leaded ring. And last, but not least, a piece of shrimp dangled on an unsnelled no. 2, another 12 inches down. I swung the rod back and smoothly cast the rig, so the liver wouldn't tear away.

The rig flew awkwardly, teasing to tangle in midair. And it sounded worse when it hit the water 90 feet away. But I knew when the rig reached bottom, it would straighten out to look like it did hanging from my rod tip. Or, at least that's what I hoped.

I leaned the 7½ foot, medium/heavy-action rod into a forked stick whittled from a box elder branch, then turned the reel handle a couple of times to spool some excess line. The sinker scratched bottom, bouncing the line and rod tip lightly, then the line pulled tight when the sinker found a hold in the slow moving pool. I sat behind the rod and another, crowding them so a fish couldn't pull a rod into the water before I reached it.

The other rod held a clump of chicken liver about 40 feet away, slightly downstream. The 6½ foot medium-action outfit, spooled with 6 lb. test, is better suited for trout and smallmouth bass, but two rods is better than one when action is slow. I played it safe by rigging the outfit with only one hook, split shot, and slip sinker.

I sat for several minutes, watching the highlighted tips against the murky waterline for the slightest movement. My eagerness for quick action wore away, and I lay back against the dark loamy bank. The rod tips became easier to watch, pinned against the greenery on the opposite shore. And the cool bank felt good against my back.

Ash and box elder shaded me, making life a little bit more comfortable. And my truck was parked just ten yards behind me on a Forest Service access where the George Washington National Forest meets the South Fork of the Shenandoah River, downstream from Luray. I had it a little too easy.

# Chicken Liver Catfish

*What better way to spend a  
summer's afternoon than to tie a  
piece of liver to a hook and lean back  
against a nice, comfortable tree?*

*by Tom Prusaczyk  
illustrations by Jack Williams*

But I had just one more request—a channel cat.

A couple of weeks before, during the first week of July and about 20 miles upstream, I came across three fishermen standing thigh-deep in an eddy on the opposite side of the river. I was wading upstream from a bridge on Rt. 340, a few miles south of Stanley, for an evening of bass fishing. When I asked if they were doing any good, the elder of the three held up a chain stringer hooked to his belt loop. A two-

After the sunset grew a hour old and I had caught and released a dozen or more bass and some sunfish, I headed downstream and home. The trio were still fishing the eddy. This time the gray-haired gentleman held up another catfish with the two-pounder, one of five to six pounds by his judgment. I had enjoyed myself while flyfishing, but the bass and sunfish didn't measure up to those catfish. I had been thinking about doing some catfishing; those catfish gave me the inspiration.

*"I was content to watch the evening fade, listen to the cuckoos pray for rain, and the war cries of a flock of crows across the river, and feel the late evening drafts . . ."*



pound channel cat wiggled at the end of it. I smiled and shouted a little louder, so he heard that I thought it was a nice fish. He told me that he had caught it on chicken liver.

I waded another 200 yards upstream to a stretch of broken water and started fishing, wishing that I could trade my flyrod and muddler for a spinning rod and a chunk of chicken liver. As I worked the muddler, I thought back to catching a few foot-long channel cats from Lake Erie and keeping them, to my partner's surprise. I smiled as I remembered the disbelief in his eyes while I fried the fillets, then how he grinned and the words of praise as he ate his share.

A week later I fished a small, but deep pool at the bottom of the broken water, about a hundred yards above the eddy where the three men fished. The evening was hectic at first. Five bullheads swallowed my chicken liver baits and felt the sting of my hooks within the first 15 minutes. After the opening spree, I didn't catch anymore bullheads, which suited me fine. But I drew a blank on channel cats.

The next day I brought the medium/heavy-action outfit. In the evening, I was back at the small pool above Rt. 340. The evening grew late and turned gray and black. The only fish I caught was a small bass on a piece of shrimp. I had to do some thinking

about catfish and find a better spot. . .

An hour passed before the tip of my heavy rod bounced a few times. I attempted to set a hook into whatever was causing the commotion. I didn't feel a thing. Another piece of shrimp sweetened the bottom hook and a glob of liver went on top before I tossed the rig back out.

A half hour later, the tip of my heavy outfit was yanked from the greenery to the light brown river. I snapped up. My hand neared the rod as it bounced back and the line fell limp to the water. Years of sucker fishing in Pennsylvania have sharpened my reflexes, but I knew better not to strike. I told myself to wait until the line showed motion.

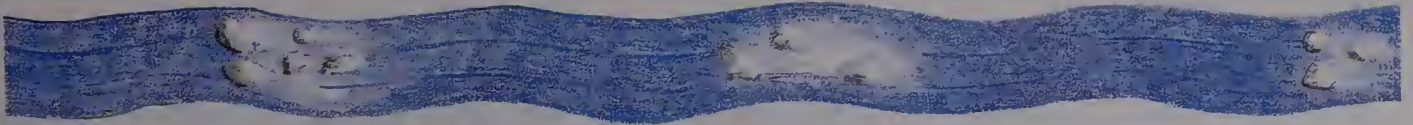
The line began to drag over the river's surface and I saw a foot and a half of gray side roll where the baits were. The catfish had probably hooked itself. Still, I yanked the rod back to set the hook.

As I stood up, the cat rushed towards the middle of the river. The reel drag wasn't giving line fast enough, so I pushed the rod forward and opened the bail in the same motion. Then I held the rod between my legs while I grabbed the other rod, reeled the line in, and laid the outfit on the bank to keep it out of the way.

By the time I was ready to fight the catfish, most of the line had left the spool. I worried about the slowly shrinking spool of line as I fiddled with the drag. When I began to reel, I wondered if I still had a fish on. A lot of line had bowed downstream. I finally caught up to the catfish.

The rest of the fight didn't match the intensity of the first run. The catfish bulldogged for a bit, then slowly surrendered to my rod pumps. I foiled the catfish's last effort to swim into a fallen tree by pointing my rod downstream to turn it with side pressure. The catfish gave up and gently rolled at the surface. I netted the cat headfirst and lifted it onto the bank with its





*"The trio were still fishing the eddy. This time the gray-haired gentleman held up another catfish with the two-pounder, one of five to six pounds by his judgment."*

forked tail standing out of the small long-handled net.

The snelled hook simply broke when I tried to work it out in the corner of the catfish's mouth. I realized I had caught more than I had hoped for. A two-pounder would have made the evening a success. When I lifted the catfish's head to my waist, its tail reached my shin. And to my uneducated catfish scale of an arm, the catfish felt like a good five to 10 pounds. (It later measured 27 inches.)

I strung a couple of stringer hooks through its gill and mouth, not to take any chances. I hooked the stringer on a root and let the catfish back in the water. Satisfied that the catfish was secure, I re-rigged the tandem and cast the rigs to their original spots.

After a couple of minutes, I lay back. I was content to watch the evening fade, listen to the cuckoos pray for rain, and the war cries of a flock of crows across the river, and feel the late evening drafts replace the lingering hot afternoon breezes.

I listened to some canoeists float down the river for 10 minutes or so before they drifted into view.

"Doing any good?" I yelled out to the four men.

"Not as good as you," one of them replied.

I was a bit confused. I didn't think that they had seen me land the catfish.

"We caught a few bass; one was about 13 inches," he added.

"That looks like heaven," he said, referring to me taking it easy on the bank.

I smiled, laughed, then wished them luck before they floated out of view. Funny thing, that remark. I remember thinking that same thought two weeks before when a gray-haired fisherman had held up two catfish for me to admire. □

*Tom Prusaczyk worked last summer as a biological technician at Shenandoah National Park. He now lives and works in Pennsylvania.*

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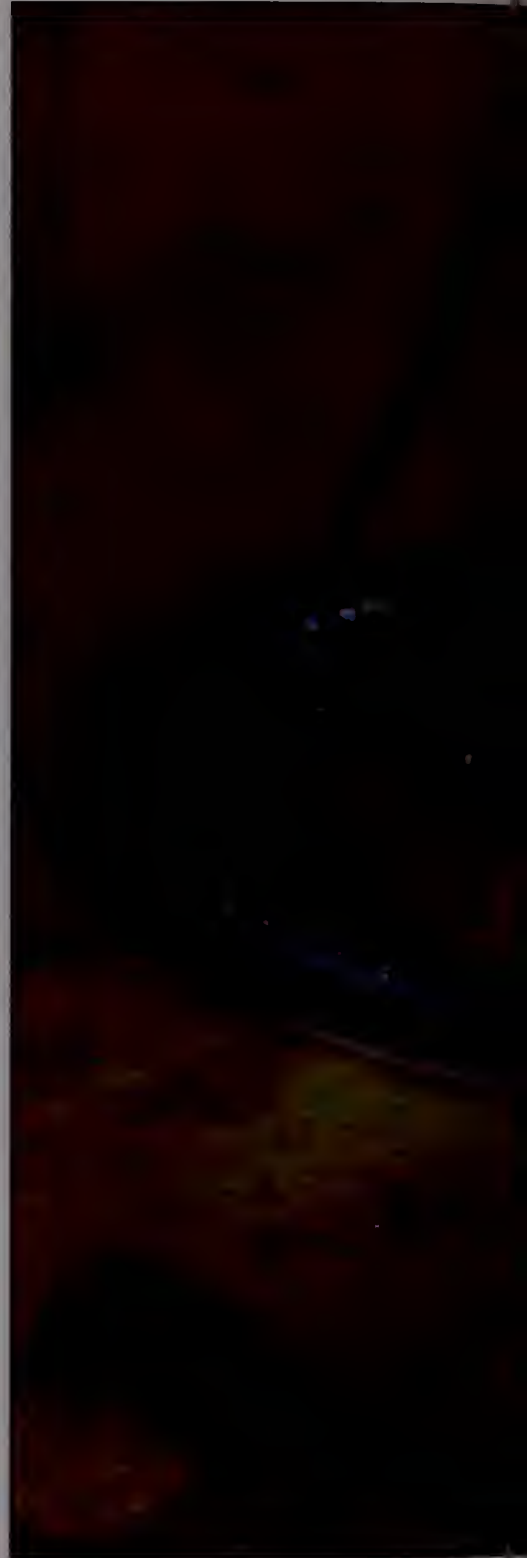
# King of the

Virginia's Peaks of Otter salamander may not seem special to the casual observer, but this small animal is king of the night in this one place in the entire world.

by Chris Pague

**F**rom the top of Sharp Top Mountain you can see the whole world. At least to the Peaks of Otter salamander it's the whole world. In those Blue Ridge mountains from Apple Orchard to Sharp Top and a few miles downslope to the east and west dwells this small dark salamander—and nowhere else. Virginia doesn't have many endemic vertebrates exclusively found in Virginia. No mammals, birds, or reptiles. Only two amphibians and a few freshwater fish are found exclusively within the political limits of Virginia. They are our responsibility and ours alone.

*Peaks of Otter salamander (Plethodon hubrichti); photo by Lynda Richardson.*





# Mountain

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"... the most remarkable fact about the Peaks of Otter salamander is the small area in which it lives. There is no obvious reason, at least to us, to explain its small range."

A biologist knows the Peaks of Otter salamander as *Plethodon hubrichti* and finds it of immense scientific interest. The naturalist knows it as a handsome long salamander with remarkable green or brassy markings—a rare gem. The casual hiker probably doesn't know it at all. Unless you are looking for it, only an accidental discovery under potential firewood would make you aware of its presence. During the day, the Peaks of Otter salamander abides under rocks, logs, branches and leaf litter of the forest floor. There, it is unseen to many potential predators and to us. But during the night, it's another matter.

Night is their dominion, and if we were but one-inch tall, night life in the forest near the Peaks of Otter would be the repeat of what it must have been to the first small mammals during the reign of dinosaurs—full of huge predators. Since these salamanders may reach 158 millimeters in total length (that's about six inches), we, at one-inch tall, would be a potential food item. When darkness falls and the humidity rises, the Peaks of Otter salamanders leave their diurnal hiding places to search for food. And food to a salamander is just about anything alive that it can subdue and get into its mouth. On many nights in the Appalachians I have watched this "mesozoic" scene repeated dozens of times.

Salamanders become active at the surface during the night not only because it's a good way to avoid being eaten. Like most amphibians, their skin is susceptible to dehydration. So, for the same reason you wouldn't hang your clothes outside to dry at night, salamanders become active then. Not just any night will do, however. Surface activity is minimal on clear dry nights, or when it is cold. Evenings that are bright with moonlight are also avoided, since many nocturnal predators see better in the brighter light.

When feeding, salamanders slowly move over the forest floor. As often as not, one of the abundant nocturnal invertebrates will walk or crawl too near. There is an almost imperceptible movement as the salamander's tongue darts out at the food item. If it's a hit, and it usually is, the food, tongue at-

tached, is retracted into the mouth to be crushed by the plentiful teeth. (In fact, the genus name *Plethodon* means "full of teeth.") Larger items, such as earthworms, are grabbed with the jaws and actually wrestled. If snapping its head back and forth does not work, the salamander begins rotating its whole body until the prey is dislodged or broken into a swallowable piece.

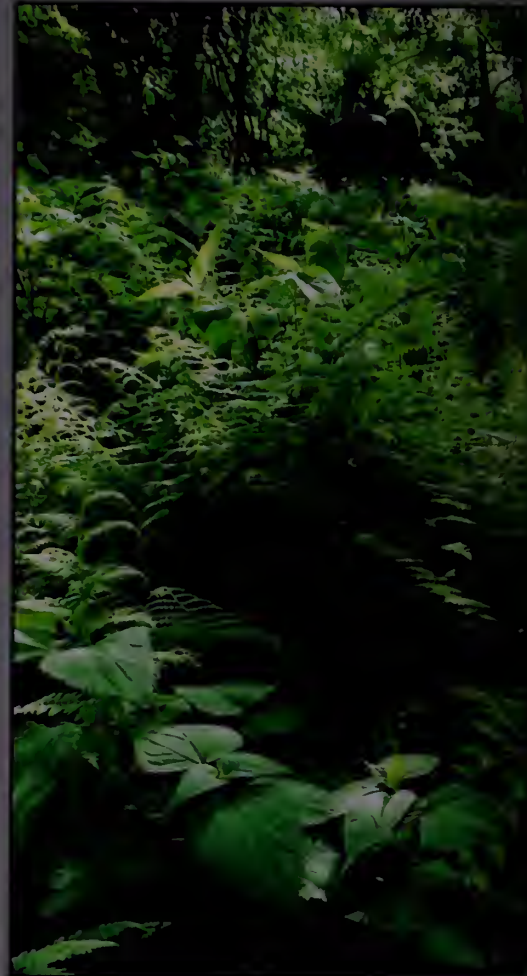
The abundance of food within the habitat of the Peaks of Otter salamander makes long journeys away from their lairs unnecessary. Most salamanders of this genus have very small home ranges, usually less than 144 square feet. But in this area, males will attack other males encountered. Females are generally tolerated, and even courted during the fall to spring mating season.

Within the narrow range of the Peaks of Otter salamander, its habitat does not seem to be unique. The favored sites seem to be mature to old Appalachian hardwood forests at elevations from 1800 to 3900 feet. Surface rocks are usually abundant and the sites are often moist. The need for wet sites is also reflected in the seasonal activity cycle. During the spring, fall, and winter, evaporation rates are lowest and the soils cool and moist. This is when salamanders are found in their highest numbers. But during the hot dry summer, they apparently retreat deeper underground. Of course, any long dry period of weather will cause them to submerge, just as long wet periods will allow them to become active on the surface.

Mating takes place in the fall to spring, but the eggs are not laid until June. After mating, the female stores the sperm until it is the proper time to lay eggs. The 7-15 eggs are then passed by the sperm where they are fertilized and passed out. Larger females lay more eggs than smaller ones. But, no one has found the eggs of the Peaks of Otter salamander. They are probably deposited in a small cavity underground where they will be protected from high summer temperatures and drying.

In high school, we all learned that amphibians have two stages in their development: an aquatic larval stage

Opposite: Sharp Top Mountain, home to the Peaks of Otter salamander; photo by Cindie Brunner.







and a terrestrial adult stage. However, none of the species in the genus *Plethodon* have an aquatic larva. The embryos complete their development within the eggs, and once hatched are ready for the terrestrial existence of an adult. However, these tiny young animals are even more sensitive to drying, and apparently remain underground until the cool rains of fall. Some have been found near the surface in late September and are only about one-inch long.

*Salamanders are not often seen by the casual observer. During the day, they can be found most commonly under large rocks or boulders, like the Cow Knob salamander pictured here (cousin to the Peaks of Otter salamander) found by researcher Kurt Buhlman (far left). But at night they come out, hunting down their prey in some of the most beautiful habitat in Virginia (left); photos by Lynda Richardson.*

Still, the most remarkable fact about the Peaks of Otter salamander is the small area in which it lives. There is no obvious reason, at least to us, to explain its small range. After all, within its habitat it is remarkably common. The two closest relatives of this species, the Shenandoah and Cheat Mountain salamanders, are also very rare, particularly the Shenandoah salamander. But other members of the genus are more broadly distributed. Is the Peaks of Otter salamander a relict of the Pleistocene when the climate was cooler and perhaps more moist? Did this species become trapped in a cool

pocket of higher elevation mountains with a rapid changing of climate? Some scientists have suggested that *Plethodon hubrichti* cannot compete with the widespread Red-backed salamander except in the Peaks of Otter area. It does appear that in all but two small areas, the Red-backed and Peaks of Otter salamanders do not live together. It is just such questions that make biology such a fascination with many of us.

But, along with this wonder are some practical considerations. Due to its rarity, the Peaks of Otter salamander's existence could be easily jeopardized. The Blue Ridge Parkway, a national park, and the Jefferson National Forest contain most of the known range of this interesting species. But since all known populations are in older forest types, some timber management strategies could create unfavorable conditions. The Forest Service already recognizes this species as a Sensitive Species, which gives it special consideration in the development of forest activities. Apparently, either the salamanders do not move far enough to cross the Blue Ridge Parkway or the scenic roadway is an impassable barrier. The National Park Service has designated its habitat as natural zones.

Investigations are currently underway to determine some of the important facts about this species that will help us make meaningful decisions in its protection. For instance, the distance individuals move will affect how quickly disturbed areas can be naturally reinhabited. The ability to tolerate partial tree removal will determine the potential impacts of the inevitable Gypsy moth defoliations. And, by studying the details of each place we know it lives, perhaps we can learn something of why it is restricted to such a small area. We in Virginia should be particularly concerned about the Peaks of Otter salamander and proud to have its care within our hands. Its continued existence will prove how well we can live up to this responsibility. □

*Chris Pague is the zoologist for the Virginia Natural Heritage Program.*

# Secret Smallmouth Hideouts

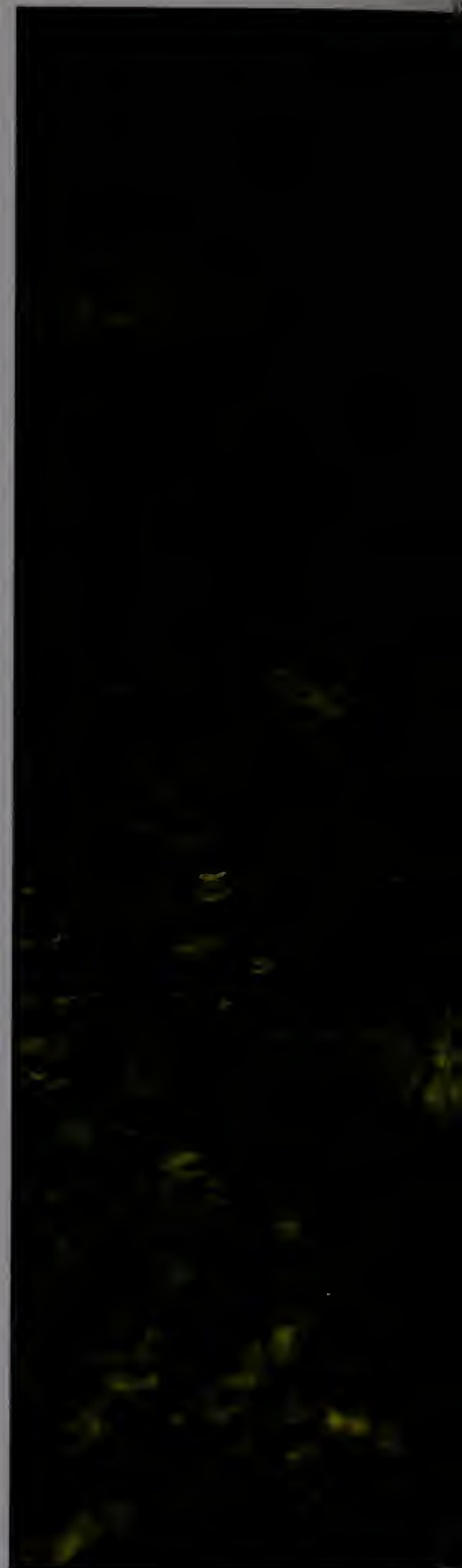
Anglers have overlooked  
some memorable smallmouth  
fishing on some of our lesser  
known rivers.

by Bruce Ingram

Few, if any, Southern states have a quartet of rivers to match the Old Dominion's "Big Four" smallmouth streams: the James, New, Rappahannock, and the South Fork of the Shenandoah. Living halfway between the James and the New, no fishing season of mine would be complete without several visits to the illustrious waters of these two rivers. And periodically, I like to make pilgrimages to the South Fork and the Rappahannock.

The problem—and it's a nice one—is that bronzeback angling is so superlative in those four waterways that we Virginians tend to overlook a number of other fine rivers. Take, for example, three overlooked smallmouth streams: the Maury, Clinch, and Roanoke Rivers.

*Smallmouth bass; photo by Karl Maslowski.*







## The Maury

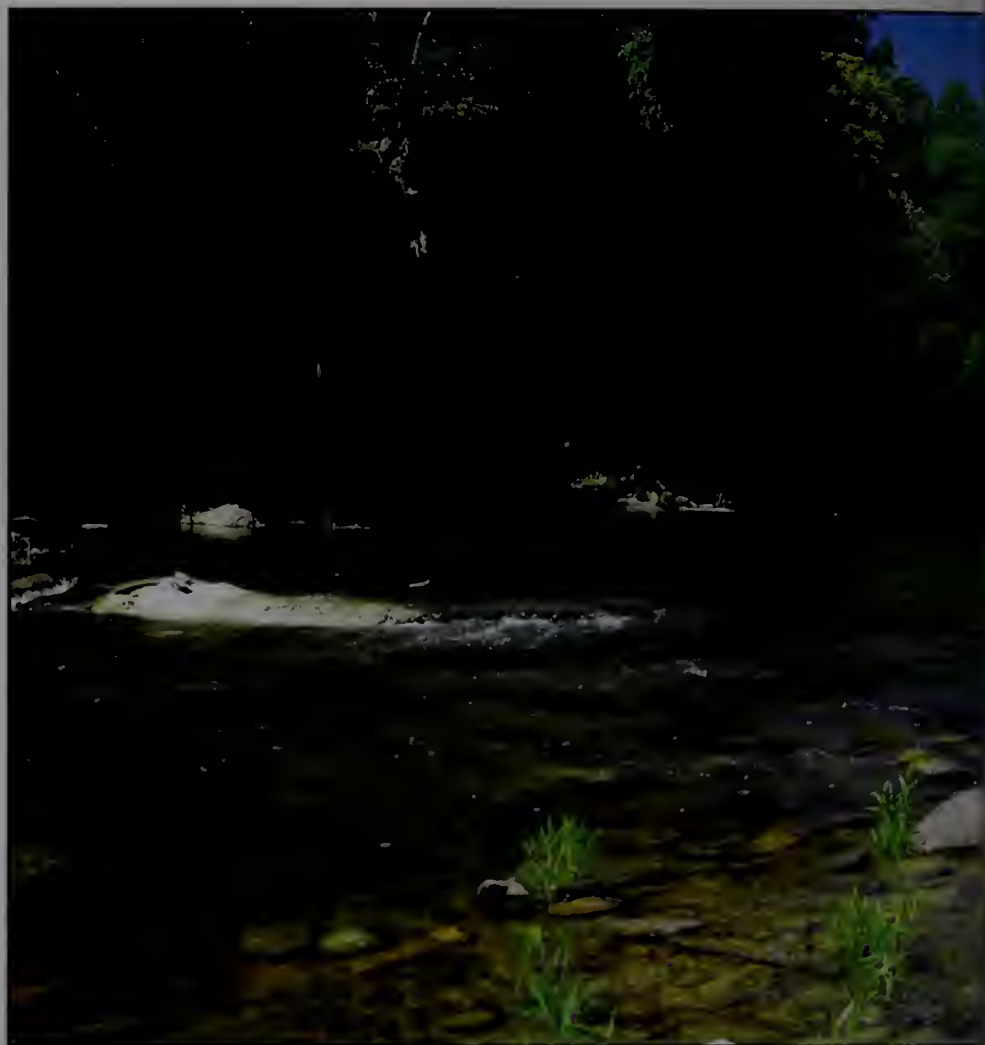
Of all the Commonwealth rivers I have paddled—with the possible exception of the Rappahannock—the Maury is the most beautiful. Though the stream still has scars from the November, 1985 flood, the Maury maintains its wilderness character as it winds its way through northwestern Virginia before emptying into the James near Glasgow.

The Maury is not a big river and it's prone to having low water levels in late summer, thus making the spring and early summer periods the best times for a float. However, I have canoed the stream in September with a minimum of portaging. Some of the better float trips are from Buena Vista to Glasgow (about 12 miles) and the 14-mile trip from Rockbridge Baths to Beans Bottom, located a few miles above Lexington, just below the Interstate 64 bridge.

Although every year a few smallies in the four pound or better citation size are checked in from the Maury, the stream is simply not big bass water. The stream does have, however, numerous eight to 11-inch bass and plenty of chunky rock bass and redbreast sunfish. In fact, some would say that the Maury has too many bass of that size. Sportsmen would probably be doing the stream a favor if they kept a few of these overabundant nine and 10-inchers for a streamside meal and released any of the larger, genetically superior, mossybacks.

The Maury is basically a series of riffles, runs, and pools—standard Commonwealth river fare. Look for the bass to be holding in or along eddies, underwater limestone ledges, current breaks behind rocks, and logs at the tail end of pools. Bring along the usual assortment of river lures: Rapala or Rebel minnow imitations, crayfish crankbaits, white and brown jigs, inline spinners with gold or silver blades, and topwater lures such as tiny torpedoes and jitterbugs.

Because of the river's burgeoning bass, fly fishermen especially will be enamoured with the river. It's hard to cast a Sneaky Pete Popper and not get a strike. Grasshopper and cricket imitations and various streamer and nymph patterns will keep you in action all day.



*Stopping at riffle areas for a bit of serious fishing is all part of a float trip on the Maury; photo by Bruce Ingram.*

For current stream conditions and canoe rental, contact the James River Basin Canoe Livery, Route 1, Box 109-A, Lexington, VA 24450 (703/261-7334 or 463-9353).

## The Clinch

Virtually ignored by the rest of the state, the Clinch River is a far western Virginia waterway that is basically fished only by residents of that region. Even there, streams such as the New and the North Fork of the Holston tend to overshadow the Clinch.

The Clinch is a larger stream than the Maury and consequently has better water flow throughout the summer and fall, making the waterway a good three-season bet for a visit. Some of the better trips along this river are the Cleveland to St. Paul stretch (a dis-

tance of about 18 miles) and the St. Paul to Dungannon stretch (a distance of approximately 18 miles with Class I-III rapids). There are numerous other trips available on the Clinch; the Virginia Game Department has nine access points along the river. For more information, contact the Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104 (804/367-1000).

Like the Maury, the Clinch is not a major citation producer, although the fish on the Clinch do run larger in size than they do on the Maury. There are also several interesting sidebars concerning this western Virginia waterway. The Clinch has perhaps the richest and most diverse fish population in the state and also has a number of rare freshwater mussel species. Spotted bass





also fin the Clinch, a claim that the other two rivers in this article cannot make.

The makeup of the Clinch is also different from the other streams. Though it has its share of riffles and runs, the stream is also characterized by its huge boulders in slow moving pools. And while most Old Dominion rivers have their beginning and end in the state, the Clinch flows southwestward into Tennessee. For current stream conditions on the Clinch, contact Black Arrow Canoes, Route 3, Box 32, Castlewood, VA 24224 (703/762-5973).

### *The Roanoke*

I have never lived more than 20 minutes or so from the Roanoke River. Yet, this past summer was only

the second time in the past 20 years I have fished it. On that trip, I caught a trio of two-pound smallmouths and plenty of smaller bass, rock bass, and sunfish as well. Since then, I have made it a point to pay more attention—and respect—to this waterway.

Respect is something that the Roanoke desperately needs. It is basically an urban river and has suffered from industrial runoff (particularly during the flood of 1985) and from siltation. Plus, the stream has more than its share of the flotsam of our society. On a recent trip there, I had to maneuver my way around a car hood in one place and a manhole cover in another.

The Roanoke, as it flows through the cities of Salem, Roanoke, and Vinton, is also a battleground currently between developers and environmen-

talists. Arguments have been made by the former on the virtues of damming, channelizing, and generally altering the river in name of economic development and flood control. The latter group, for good, sound biological reasons, simply wants to let the river be. Meanwhile through it all, the smallmouth clings tenaciously to its niche in the Roanoke, and—unknown to many—provides surprisingly good sport.

Access to the river is simply a matter of putting in at one bridge and floating to the next one. Because of its urban setting, camping is really not an option along this waterway. The Roanoke annually suffers from low water levels in the late summer and early fall, making the spring and early summer periods the best choices for a float. For current stream conditions on the Roanoke, contact the All Huntin' 'N Fishing Store, 7th Street & College Avenue, Salem, VA 24153 (703/387-0900).

There are also good fishing opportunities on the river above the city of Roanoke, which will take you out of the urban setting. However, there are no public access points anywhere on that part of the river, and permission must be obtained from landowners before using private land to put in or take out your boat along that stretch of river.

A popular advertising slogan proclaims that we have it all in Virginia. Though that phrase is probably not referring to our smallmouth streams, it very well could be. In many states, rivers such as the Maury, Clinch, and Roanoke would be among the better known ones. Here, however, these waters have to take a secondary position to nationally famous ones such as the James, New, Rappahannock, and South Fork of the Shenandoah.

There are many other rivers in the state that offer solid smallmouth action, too. Streams such as the Tye, Rapidan, Rivanna, and South rivers are lightly publicized. If you live in the western half of the Commonwealth, you are really never very far from quality bronzeback fishing. □

*Bruce Ingram is the Virginia editor for Outdoor Life magazine and a frequent contributor to Virginia Wildlife.*





# Encounters with the Log God

Pileated woodpeckers justifiably evoke awe when encountered. As North America's largest living woodpecker with a lineage that traces back to dinosaurs, what else would you expect?

by Nancy Hugo

**N**o one forgets his first encounter with the Log God. Years later in describing it, eyes still widen, voices rise with excitement, and hands go up to demonstrate: "He was HUGE!"

If the pileated woodpecker, known to backwoodsmen as the "Log God," isn't Virginia's most dramatic bird, it would be hard to imagine what (short of the bald eagle) is. Standing over a foot and a half tall with flaming red crest, striking white facial stripes, and stunning black body, the pileated woodpecker is North America's largest living woodpecker. It's also one of the most dramatic in flight, with sweeping wingbeats and flashing white underwing areas. Strangely enough for such a take-your-breath-away sight, the pileated woodpecker is also fairly common, a fact I would have found hard to believe the day I first saw one.

*Opposite: photo by Vinyard Brothers.*



The pileated woodpecker is well-equipped for extracting insects from rotting trees, with its flintlike bill, thick skull and long tongue; photo by Vinyard Brothers.

No one visited by an archangel could have been more dumbstruck than I the day I pulled out of my suburban Ashland driveway and turned the car toward an errand, only to find the Log God in front of me instead. He was standing in a mud puddle right by the side of the road, conspicuous as a stop sign, looking to me like an escapee from a theme park or a jungle bird blown in on a trade wind. Witnesses, what I needed here were witnesses, but the neighborhood was empty but for me and the Log God. Soon there was only me and the memory of this bird I was sure was exotic (if not extraterrestrial).

"Oh yea, that was a pileated woodpecker," said my not-so-impressed neighbor. "We have them around here all the time."

Elliott hearing every household had an E.T. couldn't have been more disappointed, but my neighbor was right. Although I've never seen the Log God up quite so close again, I hear pileated woodpeckers and see them in flight around my Ashland home all the time now.

It seems Ashland is a great place for them. Old trees are what they need above all, and Ashland, although losing both old and young trees at an alarming rate, is still rich in them.

Yet, there's still some magic in discovering one has this ancient bird in the neighborhood or in a neighboring forest. It wasn't that long ago that some ornithologists believed this huge woodpecker might go the way of the ivory-billed woodpecker, a woodpecker similar to the pileated in appearance, but with an ivory bill. Now feared extinct in the continental United States, the ivory-billed needed virgin forests, huge expanses of them with numerous large, dead snags for foraging, and the destruction of the great forests signaled the end for the ivory-billed. In the late 1800s and early 1900s, some biologists felt a similar fate awaited the pileated woodpecker which also nests, roosts, and feeds in old growth timber. But there seems to have been a turnaround in the fortunes of the pileated woodpecker. Lumbering practices that favor young trees grown in short rotations still



threaten pileated habitat, but these birds whose ancestors sported with dinosaurs seem to have adapted to second growth forests, where the trees are old but not ancient.

One of only a handful of experts on pileated woodpeckers, Dr. Richard Conner, now a research wildlife biologist with the Southern Forest Experiment Station in Nacogdoches, Texas and one-time researcher at Virginia Tech, is responsible for most of what we know about pileated woodpecker habits in Virginia. Conner has been studying pileated woodpeckers for 18 years. What he has learned has done nothing to diminish his reverence for this shy bird that fascinated him as a child, and his research has led him to an even greater appreciation of the biological interactions—"the neat relationships," between the pileated woodpecker and its habitat.

What follows is a summary of some of what Dr. Conner and his fellow researchers have learned about the pileated woodpecker. (They pronounce it "pie-lee-ated," not "pill-e-ated," by the way. You'll find experts who pronounce it both ways, but Webster's agrees that it should be "pie-lee-ated.")

From observations conducted by Dr. Conner and others, we know that the pileated woodpecker's common names couldn't be more apt. Called both Log God and Log Cock, the pileated woodpecker is intimately linked to trees. His body, like that of other woodpeckers, is adapted to a life spent clinging to the sides of trees in search of wood-boring insects. All woodpeckers, for example, have stiff tail feathers that they use as props against the sides of trees, and unlike other birds that lose their tail feathers first, woodpeckers molt their tail feathers last and only after new tail feathers are well-grown. Woodpeckers also have sharp, curved claws for holding onto the sides of trees, and their four toes are arranged two in the back and two in the front (not three in the front one in the back as other birds' are) so the back two can serve as braces.

All woodpeckers also have flint-like bills and thick skulls capable of

absorbing hammerlike blows against hard wood. As the largest and strongest North American woodpecker, the pileated woodpecker leads the pack (or peck!) in this regard. According to Conner, you may have some idea what a formidable excavator the pileated is "if you can envision taking an 1/8 inch chisel to see how long and hard you'd have to hit to cut a 2-inch hole into undecayed oak." Not only does the pileated woodpecker excavate a formidable nesting cavity—it may extend 17 inches into the decayed heartwood of the tree after penetrating through 2 inches of sapwood, but he uses his bill to chip off bark and to penetrate sapwood and heartwood in search of insect prey.

The woodpecker's tongue is also adapted to its job of penetrating deep into the galleries of wood borers. It's part of an apparatus called a hyoid, and from its anchor in the woodpecker's right nostril, it winds under the jaw and around the inside of the woodpecker's head when not in use, but darts out as far as 3 inches beyond the woodpecker's bill when searching for prey. Not only is it long, it's fast and flexible. Dr. Stephen Hoyt once showed with photographs that the pileated woodpecker's tongue was so flexible, it could extend through the mesh of a wire screen and then bend at a right angle, and researcher Lawrence Kilham compared its quickness to the action of a flame thrower. It's also barbed and sticky. The barb makes it possible for the pileated woodpecker to spear insect larvae in their galleries and pull them back into his bill; its stickiness enables him to capture ants and termites on its surface.

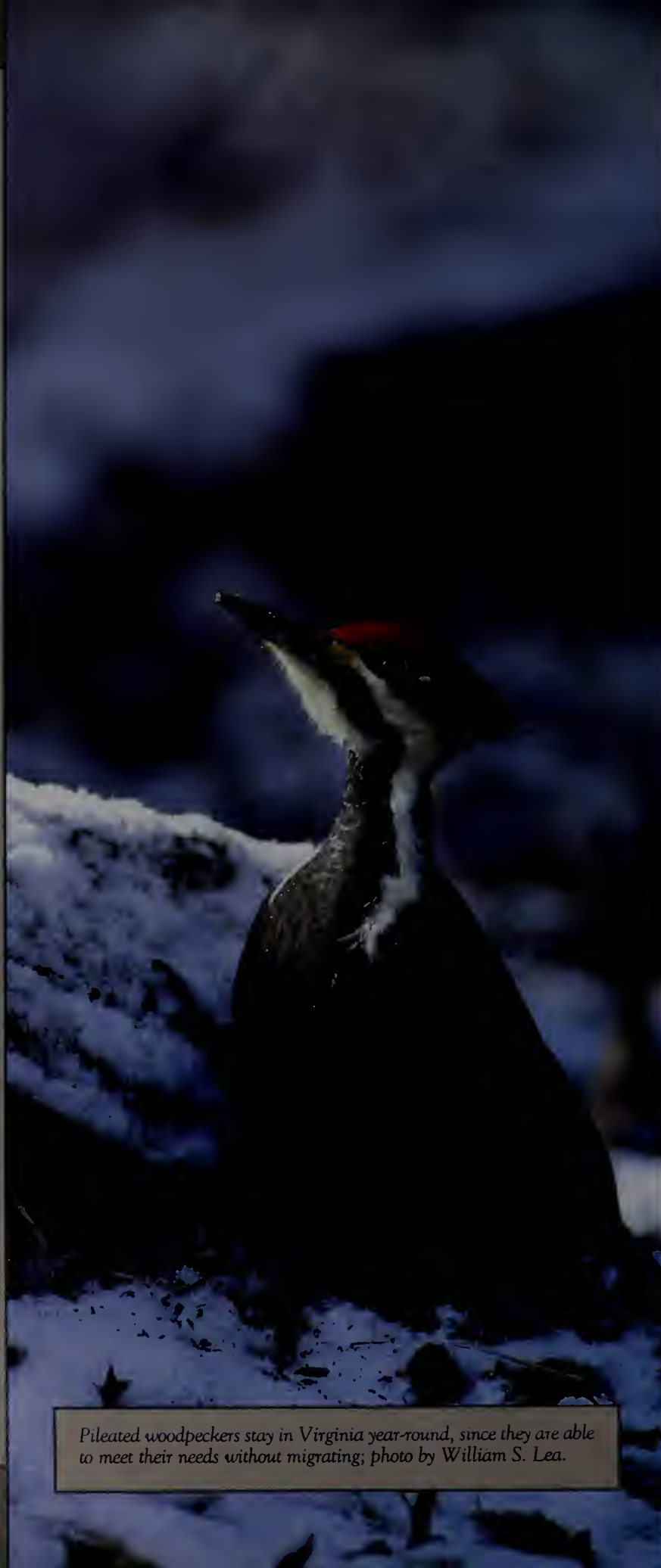
But, although the pileated woodpecker is especially well-adapted to a life spent in trees, his special requirements are such that not just any trees will do. For his nesting cavity, his roosting cavity, and his diet of wood-boring insects, the pileated woodpecker requires large, mature trees. For the site of his nesting hole, for example, the pileated woodpecker typically requires a tree at least 15-21" in diameter because, to accommodate the bird's large size, an average pileated woodpecker nesting cavity is 19 inches

deep. In Virginia, these cavities are usually made in dead snags or in living trees infected with heart rot. Heart rot, which softens the wood, makes the bird's excavation easier.

In addition to nest cavities, pileated woodpeckers also require roost cavities (sometimes these are the nest cavities of previous seasons). For both nest and roost cavities, they need clusters of suitable trees or snags, and Conner estimates that optimum pileated woodpecker habitat will have 30 or more trees per acre that are 20 inches in diameter. Habitats with fewer than three such trees per acre are not suitable.

The mature trees, snags, stumps, and downed logs typical of old growth forests also harbor the wood-boring insects that make up the majority of the pileated woodpecker's diet. Seventy-five percent of the pileated woodpecker's diet is animal matter—ants, beetles, termites, etc., the remainder is fruits and berries of plants like wild grape, blackgum, Virginia creeper, holly, dogwood, greenbrier, poison ivy, and sumac. The staple of the pileated woodpecker's diet is, however, carpenter ants, which enter trees from the ground and eat away at the heartwood. Because pileated woodpeckers can excavate carpenter ants even in winter when other foods are scarce, they have avoided the necessity to migrate, and they stay in the Virginia woods all year. Still, in winter and summer they need the old wood that harbors these insects.

Ideal pileated woodpecker habitat in Virginia is a 100-150-year-old oak-hickory forest close to a water source. It will have clusters of snags (standing dead trees or stumps over 20 feet tall) in dense stands of old trees where the canopy is about 70 percent closed. High in a broken-top snag—typically 45 feet or more above the ground on the underside of a leaning tree, you may find the nest cavity of the pileated woodpecker. Nearby will be other snags that serve as sites for roost cavities for both the parent birds and their fledged young. According to Conner, because they need both nesting and roost cavities, and because they change roosts from time to time, pileated



*Pileated woodpeckers stay in Virginia year-round, since they are able to meet their needs without migrating; photo by William S. Lea.*

woodpeckers need 2-3 snags per bird per year.

The pileated's nest cavity, which you can often locate by looking for the huge pile of wood chips—sometimes enough to fill a bushel basket—at the base of the tree, has an egg-shaped opening about 3½ inches long from top to bottom. (The pileated's feeding holes, on the other hand, are rectangular and stacked one above the other.) The nest cavity may be located in a tree that looks healthy, but chances are it's infected with heart rot. How the woodpecker detects the presence of heart rot in the tree, we're not sure, but Conner and others believe that it is by sounding the wood as he percusses it with his bill. Even a tree that looked healthy when the pileated woodpecker first chose it may soon have a broken top, however, because subsequent nest cavities and fungal activity will weaken the wood. Pileated woodpeckers excavate new nest cavities each year, but they often use the same tree for 5-7 years.

Both males and females help in excavating the nest cavity, although the males do most of the work. The hole is unlined except for a few wood chips left at the bottom of the cavity on which the female lays 3-4 china white eggs in early spring. Like the eggs of their reptilian ancestors, these white eggs need no camouflage since they are laid in a deep, dark cavity.

Both parents help with the incubation of the eggs which lasts about 18 days. They both also feed the young by regurgitation. By the time they are 15 days old, the young birds are coming to the entrance hole to be fed, and they are ready to leave the nest by the time they are 3-4 weeks old. Ann Courson, an avid birder who watched a brood fledge from a cavity tree behind her Locustville home, says the three young birds in her cavity tree fledged one a day on June 6, 7, and 8. One of the young birds, a reluctant flier, had to be coaxed out by its parents and then climbed to the top of the snag before it "launched into space."

The pileated woodpecker family group stays together until September, but the parents stay together all year. In fact, the pair bond between the male



and female pileated woodpeckers is the strongest of any North American woodpecker. Not only does the pair cooperate in digging the nest cavity and in incubation, brooding, feeding the young, but they feed near each other throughout the day, stay in the same area for successive years, and mate for life. Yielding feeding holes to each other has been cited as evidence of the closeness of this pair bond, and a series of intimate vocalizations—low grunts and “woick, woick” notes exchanged during the breeding season, are also believed to strengthen the pair bond. Although only a privileged few have seen it, pileated woodpeckers also have a courtship dance they engage in prior to copulation. Called a “bill-waving dance,” it involves elevating and depressing the crest, spreading the wings, and pointing the bill straight up, head thrown back, while rocking and swaying.

Pileated woodpeckers use both calls and drumming to communicate with each other. Their long distance call sounds like the call of a flicker, but it's louder and more irregular. “Wucka, wucka, wucka,” “week, week, week,” and “g-waick, g-waick, g-waick” are three spellings I've seen given to this call, proving once again how impossible it is to spell bird calls. When the call is given while the bird is in flight, I've noticed it seems to alternate with wing beats, as if the wing motion were expelling the sound, and Dr. Conner tells me this isn't far from the truth—that the bird's body functions almost as an accordion as it expels the sound.

Pileated woodpeckers also give random “cuks” that can serve as alarm calls when given at high intensity, but more often they serve as locational messages with one partner telling the other, “I'm moving, and this is the direction I'm going.”

Drumming and tapping also are forms of pileated woodpecker communication and aren't just noises associated with searching for food. Drumming, a sound the woodpecker produces by striking his bill rapidly on a solid dead limb, acts as a sounding board, and is used to attract a mate and to assert territorial dominance. More intimate tapping (which compared to



*Protecting the pileated woodpecker means ensuring that the habitat that they need survives. And sometimes that will mean giving their needs a higher priority than our own wishes.*

pecking for food is made with weaker blows, at a faster tempo, and while the bird is in a tense attitude) is related to courtship and to the location of a nest hole. Pairs often tap when they meet at a potential nest site, as if to communicate their approval or disapproval.

Part of the beauty of a forest in which you hear or see pileated wood-

peckers is that there you are also likely to find other wildlife that require old growth. The U.S. Forest Service, for example, uses the pileated woodpecker as what it calls an “indicator species,” a species that by its presence indicates the forest provides habitat to meet the needs of many species dependent upon old growth. If the needs of the pileated woodpecker are being met, other species also benefit. As primary excavators, pileated woodpeckers also benefit other species directly by making the holes they need for nesting. Bluebirds, wood ducks, wrens, swallows, and flycatchers—all incapable of excavating their own nest cavities—use the abandoned cavities of pileated woodpeckers. Several species of owls, squirrels, and opossums also like the quarters vacated by pileated woodpeckers.

Protecting pileated woodpeckers is a matter of protecting their habitat. Intensively managed forests grown in short rotations threaten them, because they need a sustained supply of old trees. Woodlands grown in 70 to 100-year rotations may meet their foraging needs, but Dr. Conner has found the average age of pileated woodpecker nest trees to be about 143 years old. One way of providing these old trees is to prohibit logging in riparian areas where the largest trees tend to be found, and, of course, to let more of our middle-aged trees grow to old age wherever they are found. Forestry practices like leaving snags standing where they are not a hazard, and leaving dead and downed logs on the forest floor will also help.

In communities like Ashland where our pileated woodpeckers are living in the old trees planted by our ancestors, we also need to plant new trees to be sure we have a continuous supply of old trees for future generations of pileated woodpeckers. This means planting more than ornamental short-lived trees and protecting land for the long term, where oaks can be expected to reach maturity. This way our progeny, too, will have a chance to be startled by the Log God. Would we wish for them anything less? □

Nancy Hugo is a freelance outdoor writer who lives in Ashland.





It was early April, but winter had returned briefly to Virginia, and seemingly just for the occasion. For it was a hunting scene that was slowly materializing that sun-filled, but brisk day in Amelia County, an assemblage of men gathered in small groups, and handsome pointing dogs lunging impatiently against strong leashes. Women and children added a refreshing touch of color. Horses, tethered or waiting patiently in vans, also altered the typical hunting scene. Both men and women were wearing brush chaps, but tattered hunting jackets were absent. So were guns, though empty scabbards were lashed to many of the already saddled horses.

A bird hunter for half a century and an admirer of pointing dogs since boyhood, I was attending my first field trial ever.

Why now?

Concern for my own prized dogs was a major reason. Bo, my aging English setter, had limped bravely through still another hunting season. Could he possibly make still another one? Hopefully, but in the meantime I wanted to keep him active. And Gem, my new setter pup, was just seven months old when the season ended in January, but he was hunting hard, pointing staunchly, and fetching dead birds. I hated to put his promising career on hold for nine long months. Sure, there was the shooting preserve season, but cost was a limiting factor there, and even that season had only a couple of months to go. Economics also ruled out many out-of-state trips where the seasons were longer.

In addition to aging Bo and youthful Gem, there were eight brand-new setter pups in my kennel. Most would go to fellow hunters, but I would keep one or two. And I wanted to expose them to game long before another season rolled around.

Too, I was among bird hunters across Virginia struggling with depressed quail populations and sharply curtailed seasons. But, concern for my dogs had lured me to Amelia County. Take away good bird dog work and quail hunting is hardly worth the effort. Somehow I wanted to keep those dogs active—at least part of the

# Field Trials

Schooling  
for your  
hunting dog.

by Bob Gooch

photos by  
Lynda Richardson

*Opposite: Field trial at Amelia Wildlife Management Area.*

long off-season.

Were field trials the answer?

"Our trials run from the middle of February through April and again in the fall from late September into December," said Rodgers Huff of Williamsburg, Secretary-Treasurer of the Association of Virginia Field Trial Clubs.

Well . . . that added a couple of months even beyond the long shooting preserve season. Extra work for my eager dogs? Possibly, this was the answer. But first I wanted to attend as

an observer, or a member of the "gallery"—one of the first field trial terms I picked up.

The Virginia Department of Game and Inland Fisheries' Amelia Wildlife Management Area in Amelia County is the site of numerous field trials, and a call to David Ellinghausen, Area Supervisor (804/561-3350) produced a list of events scheduled for the spring of 1989. The April 1-2 weekend fitted my calendar. The Tidewater Field Trial Club would be holding both amateur and open trials that weekend. I opted for the amateur events. I wasn't even a novice yet! Another call to Larry White of Toana, a past-president of the Association of Field Trial Clubs, assured me I would be welcome.

Til Hankley of Mechanicsville was checking the shoes on a horse when I arrived. "You can ride one of my horses if I can get this shoe replaced," he offered. He was one of the judges. Later I met Larry White who handed me a schedule of events. "Why don't you ride one of the first braces so you can get familiar with the course," he suggested.

The puppy stakes would be run first with a half dozen English pointer pups entered, four males and two females. Only pups born no earlier than January 1, 1988 were eligible for the puppy stakes—generally pups up to about 15 months old. The first brace would be made up of two males, Dude and Rex, followed by Bill and Belle, and finally Gert and Jake. "You can figure on about 20 minutes for each brace," said Larry White.

Pen-raised quail are released for most field trials, but none went out for the puppy stakes. These youngsters are judged only on how well they respond to their handlers.

Long-neglected muscles were called into play when I mounted a horse for the first brace. And they complained. Field trialers are horsemen as well as dog lovers.

The players in a field trial are the dogs up front, followed closely by their handlers (not necessarily their owners). You'll have no trouble picking out the handlers. They're the arm wavers, the whistle blowers, the two people in front doing all the hollering.

Close on the heels of the handlers are the scouts. Each handler has a scout. His job is to first release the dogs and then ride along, but often galloping off at breakneck speed to head a wayward dog back on course—or to take off in search of a lost one. Field trial dogs get lost just as hunting dogs do.

Behind the handlers and scouts come the two judges. Theirs is the sensitive job of picking apart the work of the dogs, watching them for aggressiveness, responsiveness to the handler's commands, and all of the other characteristics that make champions of pointing dogs.

"The primary goal of field trials is to promote bloodlines and improve the breed," said Larry White. That in a nutshell sums up what the judges are looking for, dogs that will improve the breed.

Behind the judges is the gallery. They comprise by far the largest group. They, too, ride. That's the only way they can keep up and enjoy the work of the dogs and their handlers. Even the puppy stakes moved at a fast clip, where a crack little pointer named Bill took top honors.

After the puppy stakes, I cornered Rodgers Huff, retired to the cooking area for coffee, and pressed him for information. Hot lunches prepared on location are an integral part of recognized field trials. You can usually depend upon it.

"What's the difference between the amateur and open stakes?" I asked.

"It's all based on the handler," was the reply. "Any handler can enter the open stakes, but those who handle and train dogs professionally are not allowed to enter the amateur stakes. That's about the only difference. There are money prizes in the open stakes, of course, but not in the amateurs."

Coffee cups emptied, we moved outside. "Got a dog in the derby," said Huff. I decided to ride with him.

The derby was for dogs born January 1, 1987 or later—none over 30 months old. Birds were released for the derby stakes as the dogs are expected to hunt and make contact with the game. "We expect them to flash point at the minimum in the fall, but in spring trials they should point

staunchly and allow the handler to flush the bird," said Larry White.

The derby stakes take more time and more dogs were entered, seven braces with 14 pointers—all males except one.

The shooting dog stakes came last, but it was the one that interested me most. It's open to all dogs, regardless of age. There were a couple of English setters entered—in addition to a dozen English pointers. My obvious interest in the setters prompted a good-natured jibe from Larry White. "Good dogs, but their hair is too long."

The shooting dog stakes is supposed

to showcase finished pointing dogs, ones that are steady to wing and shot. The dog locates the game, points, and holds it for the handler to arrive. And it must hold that point while the handler walks past it, flushes the bird, and fires the blank cartridge in his pistol. The dog breaks point only on the command of the handlers. It was here that my setters would fail. I have complete confidence in their ability to locate game and hold it for my arrival, but once the bird is in the air, they are free to break the point and go after dead birds. As a hunter, I expect that behavior. "Most hunters do," said







Field trials test the quality of training techniques, the natural hunting ability of a dog, and the ability of a handler to communicate with his dog. Far left: "East Coast Bandit," an English pointer owned by Larry White. Above: A dog is judged on its enthusiasm, smart hunting, and responsiveness in the field. Right: On point: "Cherokee the Cavalier," an English setter owned by R.H. "Billy" Kuser of Boydton, VA.



David Pomfret a field trial judge and Orange County shooting preserve owner.

If I was going to get into field trial work, my dogs would have to become steady for the flush and the shooting that followed—a major difference between hunting and field trial dogs. It was something to consider.

Another thing that concerned me was the need for a horse. Til Hankley keeps a pair of fine horses which he trailers to the trials. Many field trialers do. Owning and feeding horses wasn't something I was sure I had time for, not to mention the considerable ex-

pense. Larry White eased my worries there. "At most recognized trials there are horses for rent," he said. Bill Kuser, a Southside Virginia professional dog trainer and wrangler, had horses for rent at the trials that April day.

An amateur walking stake had also been scheduled for that day, but there were too few entries to justify holding it.

So you want to get into field trials? How do you go about it, and what is needed? Your needs are pretty much limited to a pointing dog of any breed, a promising pup or even a finished

veteran of many seasons in the field. "Our trials are open to all pointing breeds," said Larry White. "They don't have to be registered, but we advise it."

Locating a scheduled field trial is probably the first question in most newcomers' minds. "All of the recognized trials are listed in the *American Field*," said Larry White. This century-old weekly journal of field trial news is published at 222 West Adams Street, Chicago, Illinois 60606. At \$25 per year, it's an inexpensive beginning. Subscribe and follow the trials for awhile before entering if you



Bill Blankenship with his English pointer "Hi-Crest Man" waits for his brace during a field trial.

prefer.

To enter a trial, simply call the number listed and ask a few questions. Usually all you have to do is enter your dog's name, breed, sex, and age and send along the entry fee. Your dog will be entered in the drawing and assigned a brace. "Beginners get plenty of help," said Til Hankley.

Or maybe you would like to get started on a less formal basis. Ask around for upcoming fun trials. These are usually walking stakes not recognized by any of the field trial associations. They are held to give hunters and their dogs a chance to get together with fellow hunters and just enjoy their dogs and the camaraderie.

Field trials are not new to America. In fact, the sport traces its beginning to England in 1866. At least, that's the year of the first recorded field trial. There may have been earlier ones. A few years later the first American field trial was held near Memphis, Tennessee, and in 1874 the first edition of *American Field* rolled off the presses. Field trials in America were off to a fine start. Initially held primarily on large Southern plantations where native bobwhite quail flourished, they have since spread across America. Today, many are held on public hunting lands and even on military reservations.

As suggested earlier, adjustments in training will be needed for serious field

trial work—primarily teaching your dog to hold for wing and shot. And it might be a good idea to work him some from horseback so he will associate with the handler and the horse.

And yes, hunters too might have to make some adjustments, minor ones. But those adjustments could be good for the hunters as well as his dog.

Best of all, you won't meet any strangers at your first field trial. As Til Hankley said, "Beginners get plenty of help." After all, the people there are your kind of people—and they prize your kind of dog. □

Bob Gooch is an outdoor newspaper columnist and author of several books on hunting and fishing. He lives in Troy, near Charlottesville.



# Virginia

## 1989 STATE WATERFOWL STAMP Art LaMay

### Print Specifications

Subject: Canada Geese  
Image Size: 6 1/2" x 9"  
Overall Size: 12" x 14"

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Staunton, VA 24401

**Fredrick's Art & Frame**  
229 Prince Street  
Tappahannock, VA 22560

**Marshall Drug Store**  
P.O. Box 310 - Cross St.  
Urbanna, VA 23175

**Creative Framing**  
332 West Maple Avenue  
Vienna, VA 22180

**Damon Gallery**  
220 Maple Avenue West  
Vienna, VA 22180

**Beach Gallery**  
310 30th. Street  
Virginia Beach, VA 23451

**Framed Expression (VA)**  
3707 Virginia Beach Blvd.  
Virginia Beach, VA 23452

**The Brass Gallery**  
4572-1C Pembroke Mall  
Virginia Beach, VA 23462

**Village Gallery**  
5256-B Providence Road  
Virginia Beach, VA 23464

**Clark's Gun Shop, Inc.**  
Route 5 - Box 100  
Warrenton, VA 22186

**Valley Framing Studio**  
328 W. Main  
Waynesboro, VA 22980

# July Journal

## Letters

### In Defense of Landowners

Mr. Mayhugh made some good points in his letter which appeared in the May issue. But he may have missed the major point.

The general public to which Mr. Mayhugh refers is responsible for posted land and no hunting or fishing signs. Over the years I have seen more and more land closed to the general public because of the irresponsible behavior of those who ignore laws, rules of safety, common courtesy, and plain common sense.

I am not a large landowner, but I own about 60 acres and administer hunting and fishing privileges to 130 or more. I have yet to refuse permission to any responsible, careful person to hunt, fish, or otherwise share in the enjoyment of this property. I do, however, draw the line at ATV riders. My experience with them has been that they unduly disturb wildlife and are destructive, in that they have caused erosion and damage where they have been ridden on my property and that of my neighbors.

I agree that landowners should be encouraged to enhance wildlife habitat and allow some hunting and fishing on their property. But I myself do not intend to ever allow open public hunting, fishing or other general access to my land. Allowing general public access to my land means relinquishing control over what happens on it.

Mr. Mayhugh uses the term "limited," but I'm not sure how he defines it. In a sense, maybe I already allow limited public access to my land. However, each individual who uses my land does so only with my permission and such permission is granted only for one specific day at a time. I want to know who is on my property and what they are doing, and if "public" hunting means I lose that right, then I will never support it. It is my belief that very few other landowners would either.

James R. Dyer  
Rixeyville

## Wetlands Watch Program Going Strong

Wetlands Watch, a national, hands-on program that encourages citizens and conservation groups to adopt local wetlands, recognize their assets, and learn methods to protect them, was started in 1982 by the Izaak Walton League of America. Today, the program is going strong as more and more people become aware of the critical importance of wetlands in maintaining the health and quality of their environment.

Wetlands Watch Kits are available for \$3.50 each or \$2.00 for multiple copies from Wetlands Watch, IWLA, 1401 Wilson Blvd., Level B, Arlington, VA 22209. □

## Fight the Loss of Wetlands

The National Wildlife Federation has just published a "Citizens Guide to Protecting Wetlands." This 64-page manual is written in easily understood, no-nonsense language for use by individuals and groups fighting to protect wetlands in their communities. To order your postpaid copy, write a check for \$10.25 payable to the National Wildlife Federation, and send it to: National Wildlife Federation, 1400 16th Street, NW, Washington, DC 20036-2266. □

## Wanted: Bound Volumes of Virginia Wildlife

I am interested in obtaining bound volumes of *Virginia Wildlife* for all years 1981 and earlier. If you have a spare bound volume you are willing to part with, please write to: James G. Norman, Jr., 2410 Rockbridge St., Vienna, Virginia 22180. □

## Virginia Wildlife Collection Available

An incomplete 30-year collection of *Virginia Wildlife* magazine dating back to 1957 is for sale. Anyone interested can contact Mr. Leon McFillen, c/o Virginia Game Department, P.O. Box 11104, Richmond, VA 23230-1104. □

## Clean Water Workshop Scheduled

The Izaak Walton League of America (IWLA), the Natural Resources Defense Council and the Chesapeake Bay Foundation invite citizens from across the country to attend the Citizens Clean Water Workshop on Toxic Hotspot Elimination on August 12 and 13 at the Stouffer Concourse Hotel in Washington, D.C.

The hands-on workshop is geared toward local activists interested in learning more about the legal and technical aspects of controlling surface water toxics. Limited funds for travel assistance and scholarships are available. Registration is \$50. For more information, contact David Dickson, IWLA clean water specialist, (703) 528-1818. □

## Correction on Lake Curtis Phone Number

For those interested in fishing Lake Curtis in Stafford County west of Fredericksburg, information on fishing and boat rentals can be obtained from the Curtis Memorial Park at 703/752-5632.

The phone number was incorrectly listed in the Game Department's Lakes Guide in both the spring edition of *Virginia Sportsman* and the April edition of *Virginia Wildlife*. □





## Smart Boaters Live Longer

by William Antozzi  
Boating Safety Officer

Although hundreds of thousands of people take boating courses each year, millions are not reached because most courses are given at night and are too lengthy.

The average boater will not commit himself to six, eight, 10 or 12 weeks of night classes, because after a hard day's work he doesn't feel like coming home, eating and then rushing out to class. He or she may not be the type who likes to study and take tests. Also, during an extended course, personal problems may cause absences.

According to National Marine Manufacturer's Association studies, the average boat sold in this country is just under 16 feet in length with a 35 horsepower outboard engine. The owner is a middle-class worker who uses his boat for fishing, hunting, waterskiing, or just riding around until a suitable beach for a picnic is found.

A course is needed which will teach the average boater how to operate a boat without becoming a fatal statistic. Accidents resulting in most fatalities are capsizings and falls overboard and most occur on small lakes or rivers. Most people who die in boating accidents were not wearing life jackets and drowned. Small boat instability, alcoholic beverages and fatigue are major contributing factors.

In teaching boating safety courses, emphasis on methods to reduce accidents is needed. Much time in current

courses is devoted to navigation, navigation rules, the firing order of the marine engine, boat types, hull design, etc. In 1988, according to Jack Cox, Boating Education Coordinator for the Virginia Department of Game and Inland Fisheries, none of the fatalities which occurred were caused by navigation error, very few were caused by navigation rules violations, and only one was due to improper lights.

Coast Guard boating statistics show that despite what most people think, the majority of fatal boating accidents are not collisions. Collisions account for only 16 percent of all boating fatalities, and one out of two reported boating accidents.

Two-thirds of all fatal boating accidents are caused by capsizing and falls overboard. Causes of these accidents are usually the result of overloading the boat, improper weight distribution, high speed maneuvers, leaning over the edge, and operator inattention or carelessness. Recent Coast Guard studies indicate that alcohol consumption is involved in more than half of all boating accidents. In other words, most boating accidents could be avoided.

After capsizing and falls overboard, other fatalities are caused by collisions with another vessel or other objects, swamping, flooding, sinking, grounding, fire and explosion. In nearly 70 percent of the known cases, the action or inaction of the operator contributed to the fatal accident.

A short course with emphasis on boat handling will result in greater attendance and could reduce accidents and fatalities. And there is a course designed for this. Virginia Boating Basics Course is six lessons, long and is taught in three or four sessions. It is much needed and should be put into greater use as soon as practicable. The Virginia Department of Game and Inland Fisheries has prepared over 370 instructors who are members of the United States Coast Guard Auxiliary and the U.S. Power Squadron. Regu-

lar school teachers have also been trained.

The course and all course materials are free. All that is needed is a demand by boaters who want the course. For information on the course nearest you, write Boating Education, VA Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104. □

## Virginia Atlas & Gazetteer Available

The *Virginia Atlas & Gazetteer*, published by DeLorme Mapping of Freeport, Maine, has just come out with a compilation of up-to-date, full-color topographic maps for the entire state. The atlas contains 63 pages of maps, plus over 700 recreational listings. According to the DeLorme Mapping Company: "Our purpose in creating this atlas was to provide the most accurate available picture of all Virginia's back roads, as well as the land and water features important to outdoor enthusiasts." Available in book and sporting goods stores, you can also order the map book by mail for \$12.95 per book, plus \$3.00 per order for postage and handling from DeLorme Mapping, P.O. Box 298-6203, Freeport, Maine 04032.

## Free Endangered Species Pamphlet Available

The U.S. Fish and Wildlife Service has prepared an endangered species publication that explains the endangered species listing process, the need to preserve crucial habitat and the aim to restore threatened populations. For your free copy, write to: Consumer Information Center, Department 572V, Pueblo, Colorado 81009. □

# Family Outdoors

by Spike Knuth

## Fishermen With Feathers

"Oh what a funny bird is the pelican.  
His beak holds more than his belly can.  
Enough food for a week, he can hold in his  
beak, and I don't know how the hell-he  
can."

So went the little riddle my dad used to recite to me when I was a child. In later years, as I learned more about the amazing bird life of our outdoor world, it became obvious that the bills of birds and the methods in which they procure food with them are one of the wonders of the bird world. When looking into the feeding habits and the bills of birds, one can see a variety of shapes, sizes and types—all designed for a special purpose and all designed to work perfectly.

Virginia has a wealth of coastal waters and marshes as well as large tidal rivers. Associated with them are bird species that rely on the water for food. Their main food, of course, is fish, and these birds are equipped with a variety of natural tools and abilities to obtain these fish.

The brown pelican is a prime example. This feathered angler is adept at diving and catching fish, or by swimming on the surface and using its pouch-like bill as a net, scooping up fish. However, the main use of its bill is to serve up regurgitated fish to feed its fast-growing young. The brown pelican has been making a comeback on Virginia's Eastern Shore. Like many other species, DDT had affected its reproductive abilities and its populations had diminished. But now they can be seen frequently on Fisherman's Island National Wildlife Refuge, the Barrier Islands all along the coast, and some have spent time on Craney Island, a U.S. Navy and Army Corps of Engineers dredge-fill island in Portsmouth, Virginia. In 1986, brown pelicans nested in fair numbers on Metompkin Island on the northern half of the Eastern Shore.

The cormorant, another fisherman with feathers, has a powerful hooked bill with which it catches and devours fish. A related species has long been



Black skimmer

used by Japanese fishermen to catch fish for them. They place a strategically located collar on the bird to prevent it from swallowing its prey, thus enabling them to grab it away for their own use.

Of course, as with all birds, a bill can only be useful if it works in harmony with the rest of the bird's attributes and abilities. In the case of the cormorant, the bird is a strong swimmer and diver, with powerful feet and a long neck. Each feature enables the bird to perform almost to perfection. Cormorants can be found most of the year in Virginia, especially in fall, winter and early spring. Look for them around the lower James River and its tributaries and marshes. The Hog Island Wildlife Management Area near Surry hosts good numbers of them and hundreds roost on the steel power line towers that cross the James River parallel to the James River bridge from Hampton. Others can be seen along the Atlantic or on the Chesapeake Bay and its tidal river tributaries.

One of the more unusual bills of the bird world is that of the black skimmer, a bird of the saltwater coasts. Its upper mandible is shorter than its lower mandible. It is even more peculiar in that it is movable, while the lower mandible is stationary. The skimmer feeds by skimming low over the water and sticking its long lower mandible into the water to capture small fish, shrimps and other aquatic life as it knifes across the surface. Look for skimmers along the shores of the Bay, inside the Barrier Islands on the sea-side of Eastern Shore, and in tidal

creeks.

Another fish-eating bird which also adds frogs, snakes, amphibians and young birds to its diet is the great egret. This long-necked white bird, along with its close relatives, the snowy egret, great blue heron and tricolored heron, has a long, powerful bill, and along with its long neck is able to catch its prey with lightning, arrow-like thrusts. The great egret is the largest of three white egrets common to Virginia's Eastern Shore. It can be identified by its yellow bill and black legs and feet. The smaller snowy egret has more feathery plumes on its head, has a black bill, with black legs and yellow feet. The cattle egret spends most of its time on the croplands feeding on terrestrial critters. It has a yellow bill and is brushed on head and back with reddish brown. Look for the fish-eating egrets in almost any slough, creek, marsh, island or coastal water.

The osprey, or fish hawk, is also a fish-eater, but catches its food in a more spectacular manner. Equipped with long, narrow, almost gull-like wings enabling it to soar on minor thermals over water, the osprey can spot its prey from as high as 300 feet. It can dive on and catch a fish, then hold it securely by means of spicules—spine-like growths—on its feet, carrying it head first to cut wind resistance, to a perch or its nest. Ospreys are common all around the Bay, the coast and tidal waters, often nesting on channel markers.

As you travel to or through Virginia's coastal areas, watch for these and other fishermen with feathers. □



## Roses

I used to think there was something a little antisocial about growing roses, because for every unblemished bloom I encountered, I pictured a can of Ortho "Kill-Everything-That-Moves" in the garage. I've since learned that there are some responsible gardeners who can grow perfect tea roses without destroying the environment (I've met one); but, more important, I've learned that there are roses that require neither spraying, coddling, nor fine-tuned organic methods. These are also often the roses with the most valuable hips—the fruits that are so valuable to wildlife.

Wildlife use both the pulp and seeds of rose hips as food. They're a spinach food—not an ice cream food, which means they're not the first fruit usually taken in the fall, but they provide nourishment after the preferred foods are gone. They're also good for humans, and you may have encountered rose hip tea or jelly in specialty food stores. Rose hips reportedly have 20 times as much vitamin C as a comparable amount of orange juice.

For both great hips and ease of care, consider growing rugosa roses or one of our native roses. The rugosas are indestructible roses from China and Japan. They are drought tolerant, disease resistant, and easy to grow. They're particularly adaptable to beach situations, but I'm also having great success growing them in the red clay in Buckingham County.

The rugosas have dark green leathery foliage and erect spiny stems. They spread to form thorny thickets, which makes them great for hedges and wildlife cover. The typical rugosa rose has a single purplish-red blossom, but there are also rugosa roses with both double and single flowers in almost every color. They're beautiful in bloom and as fragrant as they are showy, but with rugosa roses, the bloom is only half the show. In the fall, the orangy red fruits that follow the flowers are as ornamental as they are nutritious. The hips



Wrinkled rose (*Rosa rugosa*), one of the many rugosa roses introduced from the Orient; photo by Rob Simpson.

are big—often an inch across—and although they're almost too big for some birds to handle, they're well within the capacity of cardinals and other strong-beaked birds.

Virginia's native roses are also as beautiful as they are valuable to wildlife. The pasture rose, *Rosa carolina*, and the swamp rose *Rosa palustris*, both have small red hips (about 1/2-inch in diameter) that birds love, and they have single flowers that, to my mind, make the many-petaled flowers of a hybrid tea look overwrought in comparison. The pasture rose is a particularly good rose for bordering the edges of thickets.

My favorite of our native roses for the garden, however, is the Virginia rose, *Rosa virginiana*. It has small red hips, single flowers of the lightest clear pink, and beautiful foliage that turns

yellow and red in the fall. It grows to six feet and spreads fast by underground stems.

For the bird's benefit, I might also mention the multiflora rose, a Japanese import that's become naturalized in Virginia. You really can't beat it for wildlife, but it's the scourge of farmers who can't keep it out of their pastures. It is aggressive, so I dare not recommend it, but I'll whisper its name—*Rosa multiflora*—and leave it at that.

As for sources, you can find rugosa roses at most nurseries and in most gardening catalogs. Wayside Gardens offers a wide variety of rugosa roses for about \$8.00 each. Native roses are harder to find in trade, but the Appalachian Wildflower Nursery (Rt. 1, Box 275A, Reedsville, PA 17084) offers several species for \$3.00-\$5.00 each. □

# Virginia's Wildlife

To a teenager and aspiring biologist it was sort of an experiment. It was along the same "crick" where brother Mike and I fished for creek chubs in the summer, and for about a half hour I circled the muskrat that was apparently trapped under about three inches of ice. Finally I moved away, and it swam away. I was impressed.

Found throughout most of North America from the Southcentral United States to near the Arctic Circle and introduced in many other parts of the world, the muskrat, *Ondatra zibethicus*, inhabits various wetland situations ranging from salt marshes to farm ponds. Using its large hair-fringed hind feet as paddles and its laterally flattened tail as a rudder, it is a very capable swimmer, and can even swim backwards.

But the muskrat's rich coat probably best reflects its semiaquatic existence. Like most other mammals, it possesses two kinds of hair. The coarse and long guard hair, notably thick and long in winter, gives the muskrat pelt its characteristic luster. It is the soft, dense, and basically waterproof underfur that provides most of the insulation. Indeed, it is when the structural integrity of the fur is damaged by certain agents, for example, oil from spills, that the fur loses its air-holding capacity and insulation qualities. When the dry coat is lost, most often the muskrat is, too.

Musk rats live in burrows dug into banks or they construct conical shaped houses. Depending on the situation, and one's perception of such things, muskrats may sometimes cause damage as a result of their burrowing activities. The houses, on the other hand, constructed of vegetation, are out in the water, and similar to beaver lodges, they have underwater entrances that open into the above water nest chamber. Musk rats feed primarily on vegetation and their diet may include nearby cultivated plants. As a boy, perhaps my most exciting encounter with a wild mammal was with a muskrat that was feeding in a snow-covered corn shock. As we loaded a wagon, I accidentally bopped it on the head,

## The Muskrat

by John Pagels  
photo by Gregory Scott

made it mad—or maybe it was just stunned—and we both ran east for about 20 feet. I was slightly ahead of the animal before it headed for the crick.

A muskrat's diet, however, is not limited to plants. Crayfish are sometimes consumed, and the remains of molluscs are often evident on banks or rocks that muskrats have used as feeding platforms.

Numerous animals, including various owls, the mink and raccoon, prey on the muskrat, but man is an important predator, too, as suggested by the fact that the muskrat is the most valuable semiaquatic furbearer in North America. However, because of management practices and the muskrat's high reproductive potential, trapping is not a threat to the muskrat's survi-

val. Instead, loss of habitat—loss of a place to live—represents the greatest threat to this animal in the future.

What about that muskrat under the ice? Had it taken advantage of an old muskrat trick and used air trapped between the ice and water? Probably, in part. But being able to remain submerged for long periods without breathing, a feat most pronounced in truly aquatic mammals such as whales and porpoises, is evident in semiaquatic forms such as the muskrat and beaver. How do they do it? After all, even with various energy-saving mechanisms, during dives, aquatic mammals require oxygen, and carbon dioxide is produced. Upon examination of the flesh of an aquatic mammal, including the muskrat, you would find that it is very dark, due to the presence of a special respiratory pigment known as myoglobin. Myoglobin is similar to hemoglobin, which transports oxygen in our blood. In the case of aquatic mammals, the myoglobin serves much like an air tank—it stores the oxygen that is used during those extended periods when there is no breathing.

But, there is more. In our activity—and inactivity—one of the primary factors that controls how fast and deeply we breathe is the amount of carbon dioxide in our blood. When we hold our breath the carbon dioxide gradually builds up to a point where the part of the brain that is measuring the level of carbon dioxide in our blood, the medulla, says "enough is enough" and we breathe. If we wanted to hold our breath longer, or in the present context, stay underwater longer, we would have to adjust our "chemostat" so that the level of carbon dioxide in our blood could get higher before it turned on the breathing mechanism. In a nutshell, that's the way it is with aquatic mammals; they can withstand high levels of carbon dioxide in their blood before they are forced to surface and breathe. (I'd like to tell you about more of their adaptations soon; but for now, the editor told me not to hold my breath.) □

John Pagels is a mammalogist at Virginia Commonwealth University.





